through the microscope, displayed hundreds of minute worms in lively motion. When these worms had become perfectly dry, and apparently entirely lifeless, they again recovered upon being moistened with a drop of water, and were as lively as before.

To determine the origin of these animals, Mr. Bauer undertook a series of experiments, which convinced him that the spawn or eggs were conveyed into the cavities of the germens by the circulating sap. In these experiments he inserted some of the worms into sound grains of wheat, suffered them to germinate, and found the worms in different stages of their growth in the stalk, and ultimately in the germens.

The largest of these worms was one fourth of an inch long, and one eightieth of an inch in diameter; their head is armed with a moveable proboscis, and the tail ends in a claw-like point; at a small distance from which, on the inferior side, is an orifice, from which they discharge their eggs in strings of five or six, adhering to each other. Each egg is about $\frac{1}{300}$th of an inch long, and $\frac{1}{800}$th, or $\frac{1}{900}$th in diameter; and if attentively examined, they are transparent enough to allow of the young worm being seen within, which, in about an hour and a half after the egg is laid, extricates itself. These worms exhibit no external distinctions of sex, and the author considers them to be hermaphrodites.

The first specimens of these worms which Mr. Bauer examined, were from grains twelve months old, and consequently perfectly dry. He, however, also succeeded in recovering them by immersion in water, from wheat which had been kept five years and eight months; but the longer the specimens were kept, the longer were the worms obliged to be immersed in water, to enable them to recover their muscular motions. The longest period of its suspension which he had observed, was six years and one month; after that time they seemed perfectly dead.

Alternately moistened and dried in a watch-glass, these worms might be preserved alive for several weeks; and if kept continually moist, they remained alive for three months; but if dried at the end of that period, they do not again recover, but become quite straight, and remain unaltered in the water for more than fourteen months, when they gradually decay. Their extraordinary preservation, and these various circumstances, Mr. Bauer refers to the mucous-like water in which they are enveloped, and which appears to be of an oily nature.

The author concludes this paper with an abstract of the description of these worms given by other writers, and of their opinions respecting their origin.

On Metallic Titanium. *By* W. H. Wollaston, *M.D. V.P.R.S.* Read December 12, 1822. [*Phil. Trans.* 1823, *p.* 17.]

Small cubic crystals are occasionally met with in the slag of iron furnaces, which, from being imbedded in sulphuret of iron, have been

mistaken for pyrites. Upon subjecting them, however, to more rigid examination than they had previously received, Dr. Wollaston ascertained them to be titanium in its metallic state. He found them not only harder than pyrites, but so hard as to scratch glass, and even agate. They are neither acted upon by nitric, sulphuric, nor muriatic acids; nor are they dissolved by nitro-muriatic acid. They are infusible before the blowpipe, but become superficially oxidized, and borax restores the cleanliness of their surface, by dissolving the oxide. By nitre they are rapidly oxidized; and by combining its action with that of borax, they may be entirely dissolved. The fused mass is soluble in muriatic acid; and from this solution the alkalies precipitate a white oxide, insoluble in pure and carbonated alkalies. When evaporated, the excess of muriatic acid may be driven off, and a soluble muriate remains, in a state favourable for exhibiting the leading properties of titanium. Infusion of galls produces in this solution the characteristic red precipitate; prussiate of potash occasions one of similar colour, which differs from prussiate of copper by inclining to orange instead of purple, while prussiate of uranium is rather brown than red.

Although the crystals are imbedded in sulphuret of iron, Dr. Wollaston found in them neither iron nor sulphur. That they are in the metallic state, is proved by the perfection with which they conduct a feeble degree of electricity. They did not unite with tin, lead, silver, or copper. From their extreme infusibility, Dr. Wollaston thinks that they have not been formed by crystallization in cooling from a state of fusion, but have received their successive increments by reduction of the oxide dissolved in the slag around them,—a mode of formation to which we must have recourse for conceiving rightly the formation in nature of many other metallic crystals.

On the Difference of Structure between the Human Membrana Tympani and that of the Elephant. *By Sir* Everard Home, *Bart. V.P.R.S.* Read December 12, 1822. [*Phil. Trans.* 1823, *p.* 23.]

In an elephant three weeks old, the membrana tympani was of an oval form, $1\frac{1}{2}$ inch long, and $1\frac{1}{8}$ broad. The muscular fibres lie upon its inner surface, and terminate by an attachment to the point and two sides of the malleus, so that one portion of the fibres is short, and the other more than double their length. From this structure the elephant cannot adapt its ear to musical sounds in the same manner the human ear does; but in Sir Everard's opinion, it is enabled by the long fibres to hear sounds at a great distance. In regard to musical sounds, high notes scarcely excite its attention, but it listens to the lower ones with apparent satisfaction. In neat cattle, and in the deer, the membrana tympani is oval, and the structure approximates to that in the elephant. In the horse, the hare, and the cat, the handle of the malleus lies in the middle line, so that the fibres on the two sides are equal, and the organ appears similarly constructed in the whole of the feline tribe.